

Remarks

Allowance of Claims 16-31

The applicant thanks the examiner for recognizing the patentability of claims 16-31, and for allowing these claims in the August 12, 2005 office action.

January 10, 2006 Phone Interview

The applicant also thanks the examiner for the phone interview held between the examiner and the applicant's representative on January 10, 2006. At that time, the examiner and the representative discussed: (1) how claim 1, presented in a manner substantially similar to that presented above, patentably distinguishes over Zentko U.S. Patent No. 3,294,010; and (2) how claim 1, in both its original- and amended- forms, patentably distinguishes over Harbin U.S. Patent No. 6,257,227.

Support for Claim 1 Amendment

The application fully supports the claim 1 amendment; and the applicant has not introduced any new matter.

Support for the amendment may be found, for example, in paragraph 22 of the application. Support also may be found in the product literature for the HZ-2 thermoelectric module by the Hi-Z Corporation (a.k.a. Hi-Z Technology, Inc.) of San Diego, CA – a module described by the applicant in paragraph 22 of the application. As seen in this product literature (copy enclosed as the Appendix of this reply), the HZ-2 module is an electrically-insulated thermoelectric module. (See page 6 of the seven-page Appendix.)

Section 102 Rejection of Claims 1,2, and 10-15 Based on Zentko

Claim 1, as presented above, is neither taught nor suggested by Zentko U.S. Patent No. 3,294,010; and therefore, the applicant asks the examiner to withdraw the Section 102 rejection.

Claim 1 calls for a combination comprising:

a barbecue grill including a heat source;

a thermoelectric generator operable for producing electric power, the thermoelectric generator including an electrically-insulated thermoelectric module and being activatable by heat produced from the heat source so as to produce electric power; and

a barbecue-grill accessory capable of using electric power, the barbecue-grill accessory constructed and arranged so as to receive electric power produced by the thermoelectric generator once the thermoelectric generator has been activated by heat produced from the heat source.

However, Zentko neither discloses nor suggests this invention for at least the following reasons.

While the invention calls for an electrically-insulated thermoelectric module, Zentko teaches an electrically-UNinsulated thermoelectric system. As best seen in Fig. 3, this uninsulated system is made up of a number of short lengths 28, 29 of wire that are connected in zig-zag fashion. The upper connections (hot junctions 30) are located inside the base tray 10, above the bottom wall 11; and the lower connections (cold junctions 31) are located outside the base tray 10, below the bottom wall 11. (See, e.g., Fig. 3; col. 2, lines 30-67; and col. 3, lines 21-31.) As seen in Fig. 3, the connections are exposed, resulting in an electrically-uninsulated thermoelectric system. For example, charcoal, or another conductive material that contacts multiple hot junctions 31, may

cause an electrical short in the circuit of Zentko's uninsulated system. (See, e.g., col. 3, lines 21-31.)

In addition, Zentko offers no motivation to one of ordinary skill to modify Zentko so as to meet all of the elements of the claimed invention – for example, by substituting Zentko's electrically-uninsulated thermoelectric system with an electrically-insulated thermoelectric module.

And even if, for the sake of argument, one of ordinary skill were forced to consider such a modification, they would not have a reasonable expectation of success. Instead, they would conclude that the modified grill would not heat the "hot" side of the module to a temperature sufficient to produce electric power to operate a barbecue-grill accessory.

In further detail, and with reference to Fig. 3 and col. 2, line 30 – col. 3, line 31, the Zentko grill includes a base tray 10 having a bottom wall 11, and a heat-insulating plate 25 overlying the inner surface of the bottom wall 11. The grill further includes Zentko's zig-zag-wire (28, 29) thermoelectric system – with the hot junctions 30 of the system located inside the base tray 10 above the bottom wall 11, and the cold junctions 31 of the system located outside the base tray 10 below the bottom wall 11.

In order to provide sufficient heat to this system, Zentko teaches that the (glowing) charcoal is to rest directly on the hot junctions 30. Accordingly, if one were forced to consider substituting Zentko's electrically-uninsulated thermoelectric system with an electrically-insulated thermoelectric module, they would conclude that the "hot" side of the module (or a generator containing the module) must be in direct contact with the charcoal, in order to provide sufficient heat to the module's "hot" side. However, this

is not possible, given the structure of Zentko's base-tray bottom wall 11. Instead, the module would have to located outside of the base tray 10. Therefore, one of ordinary skill would not have a reasonable expectation of success.

For at least the reasons presented above, the applicant asks the examiner to withdraw this Section 102 rejection of claims 1, 2, and 10-15. (Claims 2 and 10-15 depend from claim 1.)

Section 102 Rejection of Claims 1-3 Based on Harbin

Claim 1, as presented above, is neither taught nor suggested by Harbin U.S. Patent No. 6,257,227; and therefore, the applicant asks the examiner to withdraw the Section 102 rejection.

Claim 1 calls for a combination comprising:

a barbecue grill including a heat source;

a thermoelectric generator operable for producing electric power, the thermoelectric generator including an electrically-insulated thermoelectric module and being activatable by heat produced from the heat source so as to produce electric power; and

a barbecue-grill accessory capable of using electric power, the barbecue-grill accessory constructed and arranged so as to receive electric power produced by the thermoelectric generator once the thermoelectric generator has been activated by heat produced from the heat source.

However, Harbin neither discloses nor suggests this invention for at least the following reasons.

The invention calls, in part, for: (1) a thermoelectric generator; and (2) the thermoelectric generator being activatable by heat produced from a heat source (of a barbecue grill), so as to produce electric power. However, Harbin does not teach these aspects of the claimed invention.

As appreciated by the examiner, a thermoelectric generator is a non-mechanical device that converts thermal energy (i.e., heat) into electrical energy. And although Harbin uses the *words* “thermoelectric generator”, it is apparent that Harbin actually fails to disclose a thermoelectric generator. For example, Harbin states that “pressurized steam or other fluid may be used to rotatably (or reciprocally) drive a conventional mechanical electric or thermoelectric generator to produce lighting or other electrical needs, or to rotatably drive a rotisserie.” (See Col. 3, lines 40-43.) However, because a thermoelectric generator is activated by heat, not by mechanical motion (it has no mechanical parts), it simply is not possible “to rotatably (or reciprocally) drive” such a device.

And even if, for the sake of argument, one of ordinary skill were forced to assume that Harbin discloses a *real* thermoelectric generator, Harbin still fails to teach or suggest a thermoelectric generator that is activatable by heat produced from a heat source of a barbecue grill, so as to produce electric power.

For example, Harbin states that “the pressurized steam or other fluid may be used to rotatably (or reciprocally) drive a conventional mechanical electric or thermoelectric generator to produce lighting or other electrical needs, or to rotatably drive a rotisserie.” (See Col. 3, lines 40-43.) Harbin also states that:

[a] water tank [28, Fig. 6] disposed in heat transfer proximity [to a firebox] may be used alone or in combination with a [coil or tube] heat exchanger [20, Figs. 1-4; 19 and 20, Fig. 5] through which, over which, or about which water flows. The heat exchanger may be used (sic) alone to provide a continuous hot water feed. The tank, heat exchanger, or the combination thereof may power a [Harbin-style] “thermoelectric generator” or mechanical drive to perform a variety of tasks including driving a rotisserie, lighting, or other power needs.

(Col. 4, lines 8-15.) However, none of Harbin's fluid systems are capable of activating a thermoelectric generator.

For example, steam-heat from Harbin's "steam producing" assembly (Fig. 6., elements 21, 22, 23, and 28) would neither heat nor activate a thermoelectric generator, because Harbin's steam-producing assembly is an open, non-sealable system. For example, the "funneling device or cup 22" lacks any type of closure. (See Figs. 1, 2B, 3B, and 6; col. 2, lines 26 and 51; and col. 3, lines 4-5.) If Harbin had intended for cup 22 (or a portion of tubing to which the cup is attached) to be sealable, he would have disclosed such a feature. (See, e.g., Harbin's teaching of a tap 26 for manually controlling the flow of water (col. 2, lines 57-58, and Fig. 2B).) Accordingly, if steam is generated, it will rise up and out of cup 22; and therefore, the steam-heat would not be focused onto the "hot" side of the thermoelectric generator, as required in order to activate the generator (e.g., to create the required temperature-differential across the generator). In addition, any heat that might be transferred from the steam and/or a hot liquid (e.g., water) would not be hot enough to activate a thermoelectric generator.

Furthermore, for several reasons, one of ordinary skill would have no motivation to modify Harbin's fluid systems so as to direct heat from such a fluid (e.g., steam or a hot liquid) onto a thermoelectric generator. For example, because a thermoelectric generator is susceptible to moisture-driven corrosion – something that leads to failure of the generator (due, for example, to short-circuiting) – one of ordinary skill would not want to expose such a generator to avoidable moisture – either in steam-form or in liquid-form (even if the liquid is "contained"). And, because a thermoelectric generator may be activated by heat *other than* heat that may emanate/radiate from a hot

liquid, or steam/vapor of the liquid, one of ordinary skill would know to avoid such a fluid-based system. In addition, Harbin offers no motivation to use a thermoelectric generator in the absence of Harbin's liquid/fluid-based system; to think or suggest otherwise would be to change the principle of operation of Harbin – something that is the antithesis of a motivation to modify the Harbin patent.

For at least the reasons presented above, the applicant asks the examiner to withdraw this Section 102 rejection of claims 1-3. (Claims 2 and 3 depend from claim 1.)

Section 103 Rejection of Claims 4-9 Based on Harbin and Hegedus

Given the arguments presented above regarding Harbin, the applicant asks the examiner to withdraw this Section 103 rejection of claims 4-9. (Claims 4-9 depend from claim 1.)

Conclusion

Given the amendment and remarks presented above, the applicant believes that the previously-rejected claims (claims 1-15) now are in condition for allowance. And, therefore, given the prior allowance of claims 16-31, it appears that the application as a whole is in condition for allowance. If any outstanding issues remain, the applicant asks the examiner to call the applicant's representative.

Respectfully submitted,



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